

Date: Wed, 11 Aug 93 04:30:16 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #9
To: Ham-Ant

Ham-Ant Digest Wed, 11 Aug 93 Volume 93 : Issue 9

Today's Topics:

 2-meter mobile (car) antenna question (3 msgs)
 Computer Rotator Control?
 Dipole on side of tower?
 Help needed for 2 metre HB9CV...
 IS there an R5---R7 Cushcraft upgrade??? (2 msgs)
 My Experiences Tuning the R7 Vertical
 Polarization

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>

Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>

Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 10 Aug 1993 11:54:38 GMT
From: swrinde!cs.utexas.edu!csc.ti.com!tilde.csc.ti.com!ra.csc.ti.com!
fstop.csc.ti.com!sbrown@network.ucsd.edu
Subject: 2-meter mobile (car) antenna question
To: ham-ant@ucsd.edu

In article <1993Aug9.212031.24564@ultb.isc.rit.edu> jdc3538@ultb.isc.rit.edu (J.D. Cronin) writes:

> For a 2-meter antenna in the car, what's wrong with cutting
> an ordinary (and cheap) car radio antenna to 1/4 wave (or
> about 18 inches)?
>
> Thanks...Jim
> N2VNO

In general, nothing. There are a couple of nits to pick.

If the antenna is located where AM/FM antennas are normally located, the performance will be compromised to some extent relative to the "best" antenna location (center of the roof).

The second nit is the feed cable impedance. I think most AF/FM antennas are fed with 75 ohm cable where your 2M rig probably expects 50 ohm.

In practice, you can probably get away with it.

73 es CUL,

```
*****
| Steve Brown, WD5HCY      |           |
| sbrown@charon.dseg.ti.com | Simplicate |
| wd5hcy@wd5hcy.ampr.org   | and add   |
| [44.28.0.61]              | lightness.|
| wd5hcy@kf5mg.#dfw.tx.usa.na |           |
*****
```

Date: Tue, 10 Aug 1993 19:17:13 GMT
From: swrinde!sdd.hp.com!hpscit.sc.hp.com!news.dtc.hp.com!srugenprp!
alanb@network.ucsd.edu
Subject: 2-meter mobile (car) antenna question
To: ham-ant@ucsd.edu

J.D. Cronin (jdc3538@ultb.isc.rit.edu) wrote:

: For a 2-meter antenna in the car, what's wrong with cutting
: an ordinary (and cheap) car radio antenna to 1/4 wave (or
: about 18 inches)?

The only problem is the feedline on car antennas is a special high-impedance type so as not to add too much capacitance for AM reception. The impedance at the transmitter end of the coax will depend on the exact feedline length.

What I did was just to leave the antenna at its full length, accept whatever impedance appears at the end of the coax, and match it to 50 ohms with a small L-C network. Actually, my car antenna works on 5 bands (AM, FM, and 144, 220, 440 MHz). I built a matchbox with reed relays to switch in the various matching networks (depending on which band my 3-band transceiver is switched to). For AM/FM broadcast, the matching networks are bypassed. Works great, no holes to drill in the roof,

and no external evidence of ham radio in the car (except the
call leter license plates!)

AL N1AL

Date: 10 Aug 1993 21:33:17 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!usenet.ins.cwru.edu!magnus.acs.ohio-state.edu!math.ohio-state.edu!cs.utexas.edu!asuvax!chnews!news@network.ucsd.edu
Subject: 2-meter mobile (car) antenna question
To: ham-ant@ucsd.edu

>J.D. Cronin (jdc3538@ultb.isc.rit.edu) wrote:

>: For a 2-meter antenna in the car, what's wrong with cutting
>: an ordinary (and cheap) car radio antenna to 1/4 wave (or
>: about 18 inches)?

Alan Bloom, N1AL (alanb@sri.hp.com) writes:

>The only problem is the feedline on car antennas is a special
>high-impedance type so as not to add too much capacitance for
>AM reception. The impedance at the transmitter end of the coax
>will depend on the exact feedline length...

Antenna Specialists makes a line of "disguise" antennas for
the Junior G-Man in all of us. They are available for
low-band (30 - 50 MHz), high-band (150 - 174 MHz) and UHF
(450 - 512 MHz) and are adjustable for obtaining a good match
at the desired frequency.

I don't have their catalog handy due to a recent office move, but
I think they went for something in the \$50 - \$75 range. A bit pricey
perhaps. But remember, these are the same antennas the FBI uses - the
genuine article.

+-----+
| Jim Bromley W5GYJ |
| Intel Corp. m/s CH3-91 | This message transmitted with
| 5000 W. Chandler Blvd. | 100% recycled electrons.
| Chandler, AZ 85226 |
| tel: 602-554-5183 | Internet: jbromley@sedona.intel.com
+-----+

Date: 10 Aug 93 16:34:39 CDT

From: dog.ee.lbl.gov!overload.lbl.gov!agate!usenet.ins.cwru.edu!magnus.acs.ohio-state.edu!math.ohio-state.edu!uwm.edu!linac!uchinews!raistlin!timbuk.cray.com!walter.cray.com!rps@network.ucsd.
Subject: Computer Rotator Control?
To: ham-ant@ucsd.edu

Are there any kits, plans or packages around that control antenna rotators from a computer? I have seen beam heading software but nothing that automagically points the beam in that direction by controlling the rotator. Has anyone done this? Does it work? Any Ideas?

Thanks!

/_) rps@cray.com ((~|~))
/ _/_/_/_/_/_ |
N0MRR @ KB0GF.MN.USA.NOAM |__o
-... . -.- - -.- . -.- - -.- . -.- - -.- -\<, 0/ 0

Date: Tue, 10 Aug 1993 22:34:54 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hplred!hopkins@network.ucsd.edu
Subject: Dipole on side of tower?
To: ham-ant@ucsd.edu

Antennas on the side of a mast.

Does anyone have references on the antenna radiation pattern for a dipole antenna mounted at different spacings on the side of a conducting mast or tower? The dipole would be parallel to the tower and the horizontal pattern would be of interest. I found info for a dipole at 1/4 wave from a four-inch support in the 1988 ARRL Antenna Book, but have found no other useful info.

George Hopkins, KF6GL
hopkins@hplrat.hpl.hp.com

Date: Tue, 10 Aug 1993 10:55:00 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!doc.ic.ac.uk!uknet!
zaphod.axion.bt.co.uk!rtf.bt.co.uk!grundy@network.ucsd.edu
Subject: Help needed for 2 metre HB9CV...
To: ham-ant@ucsd.edu

Hi...

I recently acquired an HB9CV 2 element beam but I have no info about driving it. For instance, does it give a good match to a 50 ohm coax feed or some other impedance?

I would appreciate some info or a textual reference.

Thanks in advance.

Martin, G7OIR.

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Martin Grundy	email: grundy@rtf.bt.co.uk
British Telecom Customer Systems	
Hyperion House	phone: +44 273 762105
96-99 Queens Road	fax: +44 273 722038
Brighton BN1 3XF.	

Date: 11 Aug 1993 04:23:01 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!usenet.ins.cwru.edu!neoucom.edu!
news.yzu.edu!yfn.yzu.edu!ap451@network.ucsd.edu
Subject: IS there an R5---R7 Cushcraft upgrade???
To: ham-ant@ucsd.edu

Is there a factory upgrade for the Cushcraft R5 antenna that will make it work as an R7???

Thanks for any info.

Randy, WA4FJF
ap451@yfn.yzu.edu

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Randy Padawer, P.O. Box 1167, Knoxville, TN 37901-1167 U.S.of A
Internet: ap451@yfn.yzu.edu America Online: GwRepRandy
Telephone: (615) 637-7263 Ham Radio op: WA4FJF & a groovy guy.

Date: Wed, 11 Aug 1993 11:37:59 GMT
From: pa.dec.com!nntpd2.cxo.dec.com!nuts2u.enet.dec.com!little@decwrl.dec.com
Subject: IS there an R5---R7 Cushcraft upgrade???
To: ham-ant@ucsd.edu

ap451@yfn.yzu.edu (Justin Randall Padawer) writes:

>Is there a factory upgrade for the Cushcraft R5 antenna that will make it
>work as an R7???

The AES catalog lists something called a R-57K that will convert an R5 to
an R7. I'm not sure that qualifies as a factory upgrade though.

73,
Todd
N9MWB

Date: Tue, 10 Aug 1993 19:09:02 GMT
From: usc!math.ohio-state.edu!uwm.edu!linac!att!att-out!cbfsb!cbnewsg.cb.att.com!
wstrahl@network.ucsd.edu
Subject: My Experiences Tuning the R7 Vertical
To: ham-ant@ucsd.edu

I recently installed a Cushcraft R7 Vertical for use as a 'back-up' antenna in case I had the regular yagis down for maintenance, weather, or whatever. I have it mounted on a 15' mast next to a sturdy chimney. There is a tilt-over/swivel base attached to the roof so the whole thing can be tilted over for adjustments using a pulley and ropes thrown over the chimney cap. This puts the base of the R7 about 3' over the top of the chimney and about 28' above ground, with no tree branches within at least 20'. I figured this could be considered reasonably 'in the clear'. I assembled the R7 to the instruction book dimensions and was more than a bit surprised that my SWR plots were way off on a few bands, especially 17 and 30M where the SWR dip was well below the bottom of the bands per the MFJ Antenna Analyzer. I tried numerous times tipping the thing over and adjusting the lengths between traps, trying to 'move' the SWR curves. These attempts yielded unusual and sometime inconsistent results, so I put the whole thing back together to the starting dimensions and figured that adjusting the traps was worth a try. That appears to be the 'secret' to getting the R7 (and probably the R5 too) SWR curves where you would like them to be within the bands. I had to move the 17M trap capacitor out about 5/8" and the 30M trap cap out 3/4". The SWR curves seem a bit sharper on 17 & 30M than on the other bands, but it is possible to get the curves where you would like them. Maybe Cushcrap has some quality control problem getting the initial trap settings right (the other traps seemed to be 'O.K.'). Hope this post can help reduce the R7 frustration factor for other netters.

Wayne Strahl - W9II wstrahl@cbnewsg.att.com

Date: 11 Aug 1993 07:07:53 GMT

From: olivea!inews.intel.com!ilx018.intel.com!ilx049!dbraun@uunet.uu.net
Subject: Polarization
To: ham-ant@ucsd.edu

I have never seen an explanation of this:

What happens when people with horizontally polarized HF beams try to talk to those with vertically polarized antennas?

Does it matter? Is the polarization of HF signals essentially random, because of ionospheric effects?

--

Doug Braun

Email: dbraun@inside.intel.com
Intel Mail: IDC1-41
iNet: 8-435-5069 Long Distance: 011-972-4-655069
Fax: 8-435-5999 Long Distance: 011-972-4-655999
Snail Mail: US: Other:
PO Box 311 Intel Israel, Ltd.
Mendham, NJ 07945 IDC1-41
Matam Scientific Center
Haifa, Israel 31015

Date: 10 Aug 93 14:01:29 GMT

From: ogicse!uwm.edu!cs.utexas.edu!asuvax!chnews!news@network.ucsd.edu
To: ham-ant@ucsd.edu

References <23vvbm\$pir@agate.berkeley.edu>, <243t35\$qb9@chnews.intel.com>, <2455m9\$hhj@agate.berkeley.edu>
Subject : Re: Some Fundamental Antenna Questions

In this thread on Synthetic Aperture Radar, I wrote:

>>... It [SAR] works because the target moves with respect
>>to the radar while it is being illuminated (possibly for hours) and
>>induces a doppler shift in the returned signal.

michaeld@uclink.berkeley.edu ((Mikey Likes It) S. Dahl) writes:

>You mean everything I learned in two quarters of a college remote-sensing
>class were wrong! That Panamanian jungle I saw images of from a moving
>plane must've been moving too?

Date: (null)
From: (null)
>Go back to your Einstein, all motion is relative, it doesn't matter
>which is moving, the target or the antenna...

Actually, classical relativity works OK for real-world radar problems.

>...but there must be relative movement for the gizmo to work
>(actually the movement is an artifact of the need for multiple points
>of observation).

Yeah, the multiple-points-of-observation viewpoint correlates well with the notion of a synthetic, phased-array antenna. It's another way of thinking about the problem and is, to me, intuitively more satisfying. The doppler-shift viewpoint is a bit more general, however.

>Well, I'll have to go dig-up a textbook or two to argue with you on the
>origins of the term "synthetic aperture," but aperture means opening,
>and synthetic means, well, synthetic (contrived, "with thought").

Historically, the term "synthetic aperture" was applied to side-looking radars that had a large doppler processor for image formation in the signal path. This in contrast to a "real aperture" side-looking radar that just envelope-detected the returns. The difference in resolution between the two was marked, with SAR having 100x better resolution in azimuth.

[I comment about "pulse-compression (digital) filters"]

>And you don't need "digital" anywhere in the definition.

True, although conventional L-C and active filters do not have anywhere near the accuracy or stability for this kind of signal processing. It wasn't until the advent of cheap (and fast) digital circuitry that real-time, electronic SAR processing became possible.

>I don't know if a VLBA setup qualifies as a synthetic aperture, but
>if so, then one using optical telescopes, with the photographic
>plates then viewed with a stereo comparator is analog. (and then, so
>would a binocular, with it's greater-than-normal interocular distance
>to increase the 3-D perception by the brain. Come to think of it,
>the setup for taking a hologram--with a beam-splitter and combined
>target information from more than one point being combined as
>interference patterns on the photo plate (yes, phase differences),

>must qualify too.

Yes, it does. As a matter of fact the first SAR processing was done optically, from film exposed by intensity-modulated oscilloscope traces. Phase information was preserved by recording two traces from the in-phase (I) and quadrature (Q) outputs of a synchronous detector. And, yes, they were holograms in every sense of the word. The real image was formed by illuminating the film with coherent light from a laser, passing the resulting transmitted light through a set of condensing lenses (the optical analogs of Fourier transforms) and apertures (band-pass filters) and then envelope detecting the result on a ground-glass screen (or, really, a second "image" film).

>...No need for the 10 min. course Jim, but thanks anyway. >--

If we keep this discussion going, you'll get it anyway. ;-)

The problem is in translating all the arm-waving and prop-using ("pretend this marker is the radar and that eraser is a collection of point scatterers...") into ASCII.

>Michael/KC6UFR >

Jim, W5GYJ

End of Ham-Ant Digest V93 #9
